

AUG 02 2005

U. S. PTO Customer No. 25280

Case #2171A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Scott C. Miller et al.
Serial Number: 09/864,478
Filed: May 23, 2001
For: **Low Weight Cushioned Carpet, Carpet Tile and Method**
Group Art Unit: 1771
Examiner: Juska, Cheryl Ann

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Pursuant to the Notice of Appeal filed on May 2, 2005, Appellants hereby submit the requisite appeal brief.

(i) REAL PARTY IN INTEREST

The real party in interest is Milliken & Company located at 920 Milliken Road in Spartanburg, South Carolina, USA.

(ii) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

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(iii) STATUS OF CLAIMS

Pending claims 12, 14-16, 22, 23, 26 and 28-30 were rejected and are being appealed. Claims 1-11, 13, 17-21, 24, 25, 27 and 31-161 were previously canceled and are not the subject of the current appeal.

(iv) STATUS OF AMENDMENTS

No amendments have been filed subsequent to final rejection.

(v) SUMMARY OF CLAIMED SUBJECT MATTERIndependent Claim 12

Independent claim 12 (from which all other claims depend) claims a carpet tile construction as illustrated and described in relation to, for example, any of FIGS. 3A, 3B, 4A, 4B, 10A, 10B, 11, 12, 13, 14, 15, 16, 17 or 18. Referring to FIG. 3A, the carpet tile comprises a primary carpet (112) having a pile face weight of less than or equal to about 15 oz/yd². This feature is disclosed, for example, at page 5, lines 15-19 and at page 17, line 5 of the application as filed. The carpet tile further comprises a cushion layer comprising a layer of polyurethane foam (178). The layer of polyurethane foam has a mass per unit area of about 2.72 – 8.24 oz/yd² in combination with a density of less than about 10 pounds per cubic foot. Such polyurethane systems are disclosed, for example, at page 48 of the application as filed.

Dependent Claim 28

Claim 28 (from which claims 29 and 30 depend) claims a carpet tile construction as illustrated and described in relation to, for example, any of FIGS. 3A, 3B, 4A, 4B, 10A, 10B, 11,

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12, 13, 14, 15, 16, 17 or 18. Referring to FIG. 3A, the carpet tile comprises a primary carpet (112) having a pile face weight of less than or equal to about 15 oz/yd². This feature is disclosed, for example, at page 5, lines 15-19 and page 17, line 5 of the application as filed. The carpet tile further comprises a cushion layer comprising a layer of polyurethane foam (178). The layer of polyurethane foam has a mass per unit area of about 2.72 – 8.24 oz/yd² in combination with a density of less than about 10 pounds per cubic foot. Such polyurethane systems are disclosed, for example, at page 48 of the application as filed. In addition, the carpet tile of claim 28 includes a primary carpet made using a non-heatset single yarn. The use of non-heatset yarn is described, for example, at page 22, line 23 through page 23, line 3 and page 24, line 22 through page 25, line 2, and in Figure 9 of the application as filed.

Dependent Claim 29

Claim 29 depends from claim 28 and recites the further feature that the single yarn has a denier of about 1000-1400. An example of a 1350 denier single yarn which is tufted into a backing and thereafter shrunk in place by heat application is set forth, for example, at page 48, line 21 through page 49, line 4 of the application as filed.

Means Plus Function or Step Plus Function Recitals

No claim involved in the appeal includes a “means plus function” or step plus function” recital.

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(vi) GROUND FOR REJECTION

Claims 12, 14-16, 22, 23, 26 and 28-30 have been rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent 4,522,857 to Higgins (Higgins '857) or U.S. Patent 5,540,968 to Higgins (Higgins '968) in view of EP 048 986 to Porter et al. (Porter) and in further view of EP 309 816 to Turner et al. (Turner). As set forth in the Office Action of June 17, 2004, the Examiner notes that Porter teaches a low face weight of 14 oz/yd² while Higgins '857 teaches a cushion layer with a mass per unit area of about 10-60 oz/yd² and Higgins '968 teaches a cushion density of about 12 – 20 lb/ft³. The Examiner then draws the conclusion that it would have been obvious to one of skill in the art to employ the low face weight of Porter in the Higgins tile and that it would have been obvious to employ the claimed cushion polymer weight of 2.72 – 8.24 oz/yd² in view of teachings in Turner of a cushion layer for a carpet ranging from 5-500 oz/yd².

With regard to claims 28 and 29, these claims add the recital of using a non-heatset single yarn and yarn within a specified denier range of about 1000-1400. The Examiner has discounted these recitals on grounds that such features are well known in the art of carpet and that it would have been obvious to one skilled in the art to select such a yarn "...in order to produce a commercially acceptable carpet having desired softness and resiliency." See, Office Action of September 16, 2003, paragraph 13.

(vii) ARGUMENT

Non-Obviousness of Independent Claim 12:

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Independent claim 12 (and thus all claims depending therefrom) require the following three elements:

1. A carpet tile,
2. A primary carpet having a face weight less than or equal to about 15 oz/yd², and
3. A cushion layer comprising a layer of polyurethane foam having a weight of about 2.72 – 8.24 oz/yd² and density less than about 10 lbs/per cubic foot.

As best understood, this combination of features does not appear to be taught or suggested by the art of record. Accordingly, Appellants respectfully submit that the cited art does not support a *prima facie* case of obviousness.

The Office Action notes that Higgins '857 teaches a cushion layer of about 10–60 oz/yd² and that Higgins '968 teaches a density of 12-20 lbs./per cubic foot. As best understood, the Office Action relies upon Turner as teaching a foam cushion layer for a carpet may range between 5 and 500 oz/yd² and then draws the conclusion based on this teaching that it would have been obvious to modify the carpet tiles of Higgins '857 and '968 to incorporate a cushion layer with the claimed cushion weight.

Appellants respectfully submit that the cited art does not teach or suggest the use of polyurethane cushion layers with the mass per unit area and density levels as claimed in a carpet tile in combination with the claimed low yarn face weight. To the contrary, the evidence of record indicates that in constructing a carpet tile, higher densities and mass per unit area levels have previously been considered necessary.

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Further, the present invention is directed to a carpet tile. Carpet tiles differ from broadloom carpet. What may work in broadloom carpet, may not work in carpet tile. Carpet tile are highly engineered, high performance, durable, dimensionally stable products. Commercially viable carpet tile must withstand heavy commercial traffic and use. For example, commercial carpet tiles must withstand chairs with casters, desk legs, heavy foot traffic, and other dynamic and point loads. Cushion back carpet tiles are more susceptible to durability and dimensional stability issues than hardback carpet tiles. The carpet tiles of the present invention are cushion back carpet tiles in that the present claims call for a cushion layer. One of ordinary skill in the cushion back carpet tile art would increase (not decrease) the face weight, cushion weight and cushion density to achieve better or to at least maintain tile performance, durability, dimensional stability, etc. One of skill in the tile art would have thought that too soft a cushion (too low a cushion density) would lead to issues or problems such as snow plowing, cushion failure, cushion crush, edge ravel, increased roller friction, and the like. One of skill in the tile art would also have thought that a lower cushion weight (add on) would also lead to tile issues, problems or failures. Further, one of ordinary skill in the tile art would have thought that reducing the face weight would not only have been detrimental to tile face appearance, but also would be detrimental to carpet tile performance, durability, and dimensional stability.

Still further, the carpet tile face protects the tile backing, while the cushion backing protects the tile face. In other words, a proper cushion backing helps the face last longer and a proper face helps the cushion backing last longer (increases performance, durability, stability, cushioning, etc.). One of skill in the cushion back carpet tile art would not reduce the face weight or the cushion weight or density below known acceptable levels and would especially not

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reduce both the face weight and the cushion weight or density and expect to produce a performing, durable, stable, tile product.

Attached is a declaration of Mr. Michael Norton submitted earlier in another Milliken & Company application (09/721,871; filed November 24, 2000) to support the position that one of skill in the tile art would not reduce the foam density, durability, etc. Mr. Norton states that with respect to carpet tile, one would not reduce the physical or performance properties of the foam layer, it was considered essential to maintain comparable properties in the foam layer, cushion materials that exhibit reductions in physical or performance properties would have been dismissed as unacceptable substitutes, fear of carpet tile failures persisted through the 1990's and would still have persisted in November 2000, those actually working on the product of the Higgins '857 patent would not have substituted a lesser performing cushion layer even despite efforts to reduce material costs, density was maintained at about 16 lbs/ft³, further density reductions were avoided, Higgins '857 is directed to a free lay carpet tile with a high density foam, and the like.

As one of skill in the carpet tile art would readily understand, changes to a dimensionally stable carpet tile structure, even one layer in a stable structure (such as a freelay tile like Higgins '857), are not taken lightly, are viewed with skepticism, and are not done by even experts in the carpet tile art to save money, reduce mass, or the like (see Mr. Norton declaration).

Higgins '857 is directed to a stabilized, freelay carpet tile. One of skill in the carpet tile art would not make changes to a stable carpet tile structure in light of the many tile failures over the years, changes in one layer can effect the dimensional stability of the tile (cause cupping and

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curling, delamination), and the like. Adding a layer or substituting a new material for a layer can have a devastating instantaneous or latent effect on a carpet tile, especially a freelay carpet tile.

Appellants respectfully submit that the conclusion of obviousness is inconsistent with the teachings of the cited art when considered in the context of the accepted wisdom held by those of skill in the art at the time the application was filed. The conclusion of obviousness appears to not be supported by what the skilled person would have been motivated to do (or to not do).

As noted at MPEP §2142, to reach a proper determination under 35 U.S.C. 103, the Examiner must step back in time and into the shoes worn by a person of ordinary skill in the art when the invention was unknown and just before it was made. In view of all factual information, the Examiner must then make a determination of whether or not the claimed invention as a whole would have been obvious at that time to that person. Impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art. Certainly, Applicants recognize that any judgment of obviousness is in some sense necessarily a reconstruction based on hindsight reasoning. However, such reconstruction may take into account only knowledge that was within the level of ordinary skill in the art at the time the claimed invention was made. See, MPEP §2145(X)(A).

The ultimate determination of patentability must take into account the entire record. The decision is based on the legal standard of "a preponderance of evidence." With regard to rejections under 35 U.S.C. 103, the Examiner must provide evidence which as a whole shows that the legal determination of obviousness is more probable than not. See, MPEP §2142.

Thus, one essential query centers on what a person of skill in the art having the benefit of the cited references but without the benefit of the present application would have considered obvious at the time the invention was made. If the preponderance of the evidence does not weigh in favor of finding that the claimed invention would have been obvious to such a person,

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then the rejection cannot be maintained.

In his declaration, Mr. Norton notes that in actual practice, despite an interest in reducing material costs for the tile disclosed in the Higgins '857 patent, the density was maintained at about 16 pounds per cubic foot due to concerns over cushion quality and the effect on dimensional stability, long term durability and installation performance. Thus, the Office Action's proposed substitution of a low density foam for the high density foam layer of Higgins '857 would be inconsistent with actual historical design practices.

As noted at MPEP §2145, proceeding contrary to accepted wisdom is evidence of nonobviousness. In addition, Mr. Norton's declaration outlines numerous perceived disadvantages of low density foam that would weigh against its use in the manner proposed by the Office Action.

In view of the fact that the carpet tile of the Higgins '857 patent is specifically stated to be suitable as a free lay commercial carpet tile, it is respectfully submitted that the evidence of record weighs particularly heavily against the conclusion that the modification proposed by the Office Action would be obvious. The design requirements for carpet tile are particularly rigorous due to concerns over dimensional stability and the like. Thus, it is respectfully submitted that low density foam and low foam weight would have been thought to provide reduced physical performance characteristics which would weigh against the proposed placement in a carpet tile.

If the evidence is properly considered in its entirety, Appellants respectfully submit that there can be no reasonable determination that the preponderance of such evidence weighs in favor of obviousness. Unless the preponderance of evidence weighs in favor of a conclusion of obviousness, the claims must be allowed. The evidence of record establishes the accepted wisdom in the art. The evidence also shows that one of skill in the art would have considered the

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proposed modification of the carpet tile in Higgins '857 to be problematic since the tile being modified is intended to be suitable as a freelay commercial tile. In light of such evidence, Applicants respectfully submit that the conclusion of obviousness cannot be maintained and that such a conclusion is based on impermissible hindsight and is in contradiction to the controlling standards of patentability.

The express teachings of the cited reference EP 309 816 to Turner et al. contradict the conclusion reached by the Examiner. The statement apparently relied upon by the Examiner to support the rejection is found at page 5 and reads as follows: "The amount of polyurethane-forming composition used can vary widely, from 5 to 500 ounces per square yard depending on the characteristics of the textile" (emphasis added). The next several sentences specifically address carpet tile and state as follows:

For making carpet tile, for example, relatively high amounts of the composition are used. Preferably from 10 to 200, more preferably from 30 to 120 ounces of polyurethane-forming composition are used per square yard of textile.

Thus, in addressing the formation of carpet tile, both the primary reference (Higgins '857) as well as the secondary reference to Turner advocate a lower limit of 10 oz/yd² (more preferably 30 oz/yd² or 38 oz/yd²) for the urethane layer. As best understood, the Higgins '857 and Turner references were prepared by entirely different entities. The fact that two different entities independently identified a lower limit of 10 oz/yd² for the urethane layer in a carpet tile is respectfully submitted to be evidence regarding the accepted lower limits for urethane cushions

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in carpet tile. This is particularly true in light of the exceedingly broad range taught by Turner and its selection of the precise lower limit also taught by Higgins '857. Thus, no cited reference teaches or suggests a carpet tile with a cushion weight as presently claimed and the use of a cushion weight within the claimed range appears to be contrary to accepted wisdom as reflected by two independent references. As noted at MPEP Section 2145, proceeding contrary to accepted wisdom in the art is evidence of non-obviousness.

Aside from the fact that the claims recite a carpet tile with a cushion weight below the lower limit taught by any cited art reference, Appellants further note that in order to reach the invention it would be necessary to combine that light weight cushion with a primary carpet having a face weight less than or equal to about 15 oz/yd² and to utilize a polyurethane foam with a density less than about 10 lbs/per cubic foot. As best understood, the prior art provides no support for such a combination of features. To the contrary, the specific teachings in Higgins '857 as well as Turner and Porter et al. would lead one to believe that substantially higher cushion weights are required.

In the examples of Porter et al. which the Examiner relies upon, the 14 oz. fabric is paired exclusively with foams applied at extremely high weights in excess of 40 oz/yd². Of course, this is substantially higher than the upper limit of about 8.24 oz/yd² presently claimed. Moreover, the examples of Porter et al. are directed to carpet rather than to carpet tile. Finally, the teachings of Higgins '968 indicate that foam density levels of at least 12 pounds per cubic foot are desired for a carpet tile.

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It is fundamental that the art must be considered in its entirety –including portions that would lead away from the claimed invention. In the present case, the cited art advocates weights and densities of cushioning foam that are far in excess of the claimed levels. Moreover, the only piece of art that discloses yarn face weights within the claimed range also pairs such face materials with much higher weight backings and does not appear to be directed to tile. Thus, the present invention appears to depart substantially from the cited art relative to a number of different variables. Applicants respectfully submit that such departure from the cited art is strong evidence of nonobviousness.

In justifying the rejection, the Examiner cites *In re Boesch*, 205 USPQ 215 for the proposition that the discovery of an optimum value for a result effective variable involves only routine skill in the art. The Examiner further cites *In re Peterson*, 65 USPQ2d 1379 for the proposition that the normal desire to improve upon what is generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages. The Examiner then concludes that these standards support the conclusion of obviousness.

Appellants respectfully submit that legal standards from the cited case law have been misapplied in the present case. As noted above, the conclusion of obviousness ignores the express teachings in the prior art that teach away from the claimed invention. As noted at MPEP Section 2144.05 (III), obviousness may be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. In the present case, the cited reference EP 309 816 to Turner et al. provides a generic teaching of urethane compositions from 5 to 500

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ounces per square yard for textiles in general but then states that for carpet tile high amounts of composition are used , preferably from 10 to 200 ounces per square yard. By first setting forth a broad generic range including the subset between 5 and 10 ounces per square yard and then specifically excluding the subset below 10 ounces per square yard in the very next sentence directed to carpet tile, the clear teaching to be derived from cited reference to Turner et al. is that levels below 10 ounces per square yard are not acceptable for carpet tile. This understanding of the prior art is reinforced by the teachings of Higgins '857 that specifies the same lower limit of 10 ounces per square yard for a carpet tile.

Appellants also respectfully submit that the conclusion of obviousness is based on an impermissible evaluation of the individual differences between the prior art and the claims rather than on the claimed invention as a whole. As stated at MPEP Section 2141.02, "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious."

The present claims are specifically directed to a carpet tile that utilizes a face weight below any range suggested for use in a carpet tile by the cited art. This face weight is used in combination with a polyurethane cushion layer having a mass per unit area below anything suggested by the prior art for use in a carpet tile and with a density below anything suggested by the prior art for use in a carpet tile. It is this total combination (the invention as a whole) that is the proper subject of evaluation. Appellants respectfully submit that utilization of such a

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combination is contrary to accepted wisdom in the field of carpet tile construction as reflected by the cited art.

Non-Obviousness of Dependent Claim 28:

Claim 28 and claims 29 and 30 depending therefrom recite the further feature that the carpet tile of claim 12 is made using a non-heatset single yarn. The Examiner has discounted this recital on grounds that this feature is well known in the art of carpet and that it would have been obvious to one skilled in the art to select such a yarn "...in order to produce a commercially acceptable carpet having desired softness and resiliency." See, Office Action of September 16, 2003 paragraph 13. The Examiner provides no art citation to support this position.

Appellants respectfully submit that the conclusion of obviousness reached with regard to claim 28 and the claims depending therefrom appears to be based on the impermissible evaluation of individual claim features rather than on evaluation of the invention as a whole. Moreover, the conclusion ignores the fact that a carpet face formed from non-heatset singles yarn at the claimed face weight would be understood by those of skill in the art to be a weak product with the backing being visible at the numerous interstitial voids and with the face yarns being prone to substantial shrinkage upon application of heat. These characteristics are specifically described, for example, in the present application in the paragraph spanning pages 48 and 49. Thus, in order to reach the invention of claim 28, one would have to select a weak, high shrinkage face fabric and then pair that fabric with a polyurethane cushion layer having a mass per unit area and density below anything suggested by the prior art for use in a carpet tile.

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Importantly, the only motivation offered by the Examiner in support of combining the features of claim 28 is the nonspecific general motivation "to produce a commercially acceptable carpet having the desired softness and resiliency." Appellants respectfully submit that this is inadequate to support an obviousness rejection since it fails to provide any specific rational or principle that would have caused one of skill in the art to make the combination. As explained by the CAFC in the case of *In re Lee*, 61 U.S.P.Q. 2d, 1430, in order to support a proposed combination it is necessary "... to identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination." This standard has not been met. At best, the Examiner has identified individual components of the claim and then justified their combination solely on grounds that it would be within the capability of one of skill in the art to make such a combination. This is insufficient to support a rejection. See, MPEP Section 2143.01.

Further, the present invention is directed to a carpet tile. Carpet tiles differ from broadloom carpet. What may work in broadloom carpet, may not work in carpet tile. Carpet tile are highly engineered, high performance, durable, dimensionally stable products. Commercially viable carpet tile must withstand heavy commercial traffic and use. Cushion back carpet tiles are more susceptible to performance, durability and dimensional stability issues than hardback carpet tiles. The carpet tiles of the present invention are cushion back carpet tiles in that the present claims call for a cushion layer. One of ordinary skill in the cushion back carpet tile art would increase (not decrease) the face weight, cushion weight and cushion density to achieve better, or to at least maintain, tile performance, durability, dimensional stability, etc. One of ordinary skill in the tile art would have thought that reducing the face weight would not only

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have been detrimental to tile face appearance, but also would be detrimental to carpet tile performance, durability, and dimensional stability.

Still further, the carpet tile face protects the tile backing. In other words, a proper face helps the cushion backing last longer (increases performance durability, stability, cushioning, etc.). One of skill in the cushion back carpet tile art would not reduce the face weight below known acceptable levels and would especially not reduce both the face weight and the cushion weight and density and expect to produce a performing tile.

Non-Obviousness of Dependent Claim 29:

Claim 29 recites the further feature that the carpet tile of claim 28 is made using a non-heatset single yarn with a denier of about 1000-1400. The Examiner has discounted this recital on grounds that this feature is well known in the art of carpet and that it would have been obvious to one skilled in the art to select such a yarn "...in order to produce a commercially acceptable carpet having desired softness and resiliency." See, Office Action of 09/16/2003 paragraph 13.

Appellants respectfully submit that the conclusion of obviousness reached with regard to claim 29 appears to be based on the impermissible evaluation of individual claim features rather than on evaluation of the invention as a whole. Moreover, the conclusion ignores the fact that a carpet face formed from non-heatset singles yarn at the claimed face weight and denier would be understood by those of skill in the art to be a weak product with the backing being visible at the numerous interstitial voids and with the face yarns being prone to substantial shrinkage upon

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application of heat. These characteristics are specifically described in the application in the paragraph spanning pages 48 and 49 where a yarn with a denier near the upper end of the claimed range is used. As described, the resultant face fabric was weak, and had many "holes" where the backing is visible through the face. Thus, in order to reach the invention of claim 29, one would have to select a weak, high shrinkage face fabric with multiple interstitial voids where the backing is visible and then pair that fabric with a polyurethane cushion layer having a mass per unit area and density below anything suggested by the prior art for use in a carpet tile.

As with claim 28, the only motivation offered by the Examiner in support of combining the features of claim 29 is the nonspecific general motivation "to produce a commercially acceptable carpet having the desired softness and resiliency." Appellants respectfully submit that this fails to satisfy the CAFC requirement "... to identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination." Rather, the Examiner appears to have justified the combination of claim features solely on grounds that it would be within the capability of one of skill in the art to make such a combination. As previously noted, this is insufficient to support a rejection. See, MPEP Section 2143.01.

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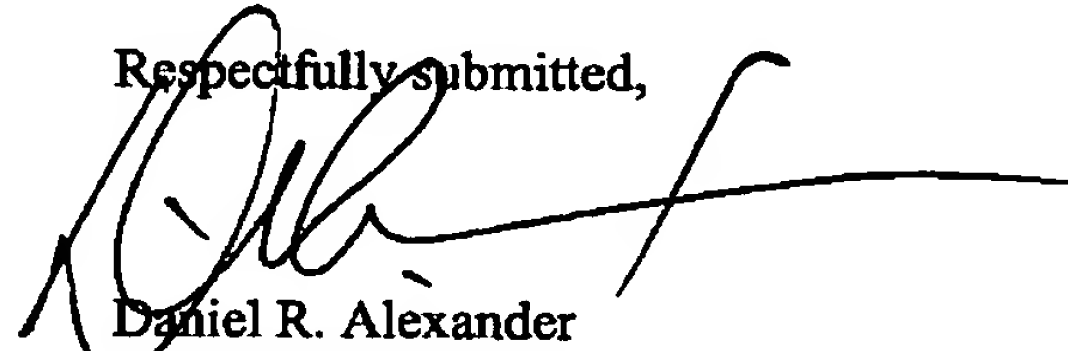
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CONCLUSION:

For the numerous reasons set forth above, it is respectfully submitted that the cited art does not support a continued rejection of the claimed subject matter. Therefore, reversal of all rejections is respectfully requested.

A petition for a one (1) month extension of time is provided herewith. To any extent required, a request for an additional extension is hereby made and authorization is provided to deduct any additional fee from or to credit any overpayment to Deposit Account 04-0500.

Respectfully submitted,

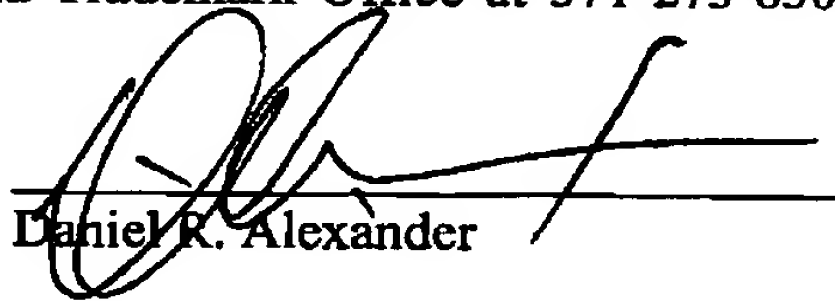


Daniel R. Alexander
Attorney for Applicant(s)
Registration Number 32,604
Telephone: (864) 503-1372

Attachment (Mr. Michael Norton Declaration)

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence, along with a Request for Extension of Time, is being transmitted to The United States Patent and Trademark Office at 571-273-8300 on August 2, 2005


Daniel R. Alexander

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Claim Appendix

12. A carpet tile, comprising a primary carpet and a cushion layer comprising a layer of polyurethane foam, wherein the primary carpet has a face weight less than or equal to about 15 oz/yd² and wherein the layer of polyurethane foam has a weight of about 2.72 – 8.24 oz/yd² and a density less than about 10 lbs./per cubic foot.
14. The carpet tile as recited in claim 12, wherein the layer of polyurethane foam is unfilled polyurethane foam.
15. The carpet tile as recited in claim 14, wherein said layer of polyurethane foam has a density of about 6 lbs./per cubic foot.
16. The carpet tile as recited in claim 12, wherein the polyurethane foam is characterized by a density of about 6 – 9 lb./cu. ft.
22. The carpet tile as recited in claim 12, further comprising a reinforcing material embedded in said layer of polyurethane foam.
23. The carpet tile as recited in claim 22, wherein said layer of polyurethane foam is about 0.04 – 0.12 inches thick.
26. The carpet tile as recited in claim 12, wherein the primary carpet is made from yarns of 1000 – 1700 denier.
28. The carpet tile as recited in claim 12, wherein the primary carpet is made using a non-heatset single yarn.
29. The carpet tile as recited in claim 28, wherein the single yarn has a denier of about 1000-1400.

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30. The carpet tile as recited in claim 29, wherein the low face weight carpet has a non-woven backing and a latex coating.

DECLARATION OF MR. MICHAEL NORTON

I, Michael Norton, state as follows under penalty of perjury:

1. I hold a Bachelor of Science degree in Chemistry from University of Houston awarded in 1980.
2. I was hired by The Dow Chemical Company in 1981 as a polyurethane chemist and worked for Dow Chemical in various positions of increasing responsibility until July 2000.
3. I am currently a principal of Norton Performance Consulting. My firm provides technical and communication services, primarily to the carpet industry.
4. In the course of my business, I have served as a technical advisor for carpet cushion applications for the Alliance for Flexible Polyurethane Foam (AFPF) from about October 2000 to present. AFPF is an industry organization focused on expanding the use of rebond polyurethane foam mainly as commercial broadloom carpet padding.

5. I have been compensated by Milliken & Company at my standard hourly consulting rate for time spent in the review of documents and in the preparation of this declaration. I am not an employee of Milliken & Company or any affiliated corporate entity and I have no ownership or other financial interest in the subject matter of any pending application or issued patent owned by Milliken & Company.

6. During the period of 1992 through July 2000, I was the Manager of Technical Services and Development (TS&D) for the Polyurethane Floor Covering Business at Dow Chemical in Dalton, Georgia. Prior to being named as Manager of TS&D, I held various positions working on development projects in the Floor Covering Business at Dow Chemical.

7. While working for Dow Chemical, I became familiar with development efforts within the industry relating to cushion-back carpet tile and perceptions regarding suitable materials of construction for such cushion-back tile. In particular, I was familiar with development efforts at Milliken & Company relating to the product described in United States Patent 4,522,857 to Higgins (the Higgins '857 patent) and subsequent improvements to that product. From about 1985 to 1991, I was involved with supporting the Milliken LM-6 cushion back carpet tile product having a pad made of polyurethane foam.

8. I note from the first paragraph of the Higgins '857 patent that the carpet tile described therein is intended to be suitable as a freelay carpet tile for use in commercial installations. Carpet products, especially freelay carpet tiles, intended for use in commercial installations are generally expected to have greater durability and strength than products used in residential installations.

9. Historically, as a general design philosophy for carpet tile, moving to materials of lower tensile strength, lower tear strength, lower elongation or lower density was considered undesirable due to the possibility of reduced dimensional stability or durability of the tile and/or unpredictable changes to the installation performance of the tile. A change in these foam properties when changing from one proven and acceptable foam to another unproven foam is an indicator of potential problems. Cushion materials that exhibited reductions in tensile strength, tear strength, elongation or density relative to known suitable materials would have been dismissed as unacceptable substitutes.

10. I have reviewed Application Serial No. 09/721,871 filed November 24, 2000 (the '871 application) and the Office Actions issued by the Patent Office in that case. I have also reviewed the Higgins '857 patent and United States Patent 5,610,207 to DeSimone et al. (the DeSimone '207 patent).

11. I note from my review of the Office Actions that the Patent Office has rejected the claims of the '871 application as being obvious over the combination of the Higgins '857 patent in view of the DeSimone '207 patent either alone or in combination with an additional reference. The Patent Office draws the following conclusion:

It would have been obvious to one of skill in the art to substitute a rebond foam layer as taught by DE SIMONE for the foam layer of HIGGINS. Motivation to do so would be the advantages of said rebond foam, such as good cushioning properties at low cost (i.e. recycled material).

This statement is incorrect in view of the level of ordinary skill in the carpet tile art at the time the '871 application was filed. At that time, one skilled in the carpet tile art would not have made the combination proposed by the Office Action for numerous reasons.

12. The fact that the substitution advocated by the Patent Office would not have been considered suitable by one of ordinary skill in the art at the time the '871 application was filed is consistent with my experience involving actual development efforts to change the foam layer in the carpet tile described in the Higgins '857 patent.

13. In practice, the carpet tile described in the '857 patent initially incorporated a foam layer of TDI polyurethane. While at Dow Chemical, I was involved in development efforts with Milliken to change the foam cushion layer of the carpet tile in the '857 patent from a TDI polyurethane to an MDI polyurethane.

14. For a tile to have desired performance, all layers including the cushion must be considered. Since all layers of a carpet tile work in relation with one another to yield a desired performance, in making the conversion from TDI to MDI, polyurethane, it was considered essential to retain substantially comparable properties in the foam layer to avoid reduced performance or failure.

15. Despite the fact that MDI polyurethanes were generally known, the development of an MDI formulation that was considered suitable as a replacement material in the tile of the Higgins '857 patent required approximately two man-years of work. During the development effort, cushion materials that exhibited substantial reductions in physical or performance properties such as firmness as measured by compression load deflection, dynamic fatigue performance, tensile strength, tear strength, elongation or density relative to the known suitable TDI polyurethane would have been dismissed as unacceptable substitutes. The mindset of avoiding cushion materials exhibiting any substantial reduction in such physical or performance properties for use in carpet tiles due to fear of failure persisted

through the 1990's and would still have been in place at the time the '871 application was filed.

16. Rebond foam pad was known for many years prior to the time the '871 application was filed.

17. Cushioned carpet tile was known for many years prior to the time the '871 application was filed.

18. I have been involved in floor covering technology since 1985 and I am not aware of any carpet tile product incorporating rebond foam prior to the time the '871 application was filed.

19. Rebond foam is understood to generally have lower tensile strength, tear strength and elongation than a corresponding virgin foam.

20. Based on my experience regarding performance requirements for tile, I was surprised to learn that a carpet tile had been made with a rebond foam cushion.

21. Based on my experience working with Milliken on product modifications for the tile disclosed in the Higgins '857 patent, the substitution of a rebond foam layer for the advocated high density polyurethane would have been contrary to prevailing philosophies relating to carpet tile. In this regard the teachings of the DeSimone '207 patent would actually have provided a disincentive to the proposed modifications since the data highlights features of rebond foam relative to virgin foam that would have been considered undesirable to those of ordinary skill in the tile art at the time the '871 application was filed. In particular, I note that from a comparison of Examples 1-11 to Example 12 in the DeSimone '207 patent that the disclosed rebond foams sandwiched between layers of virgin foam showed significant reductions in tensile strength, tear strength, and elongation relative to a corresponding virgin foam. In addition, the compression set was greatly increased. The data in Examples 18 and 19 of the DeSimone '207 patent illustrate still a further decrease in tensile strength, tear strength and elongation when sandwiching layers of virgin foam are not used. One of skill in the tile art would have recognized that decreasing elongation can give rise to friability, a severe deficiency in cushion fatigue performance characterized by foam degradation and crumbling. Reducing tear strength can yield a cushion with poor durability. Increasing compression set can result in too great a tendency for thickness variation between tiles and portions of tiles in both packaging and use. Such failure modes may negatively affect dimensional stability, which is particularly important in carpet tile, especially freelay carpet tile.

22. Based on my experience, at the time the '871 application was filed, one of skill in the tile art would not have replaced the high density polyurethane foam advocated by the Higgins '857 patent with a rebond foam having density levels as disclosed in the DeSimone '207 patent. In this regard I note that despite efforts to reduce material costs for the cushion layer in the tile disclosed in the Higgins '857 patent, the density was maintained at about 16 pounds per cubic foot due to concerns over cushion quality and the effect on dimensional stability, long term durability, and installation performance of the cushion-back tile. Due to these concerns, further density reductions were avoided despite potential raw material cost savings. The highest density reported in the DeSimone '207 patent appears to be 97 grams per liter (6.06 pounds per cubic foot) reported in Example 29. Cushion materials of such density levels would have been discounted as unsuitable replacements for the high density foam advocated by the Higgins '857 patent.

23. Based on my experience, the fact that the carpet tile described in the Higgins '857 patent is intended to be suitable as a freelay carpet tile for use in commercial installations would have weighed against the proposed substitution of rebond foam.

24. When I first became involved with AFPP, rebond foam pad was not generally known to be suitable as a carpet cushion in commercial applications. I was skeptical whether rebond foam pad could perform in a commercial environment even as an underlay for broadloom.

25. In my work on behalf of AFPP, I have experienced skepticism from third parties regarding the ability of rebond foam to perform even as a broadloom underlay when subjected to rigorous commercial installation conditions.

26. Skepticism regarding the suitability of rebond foam pad for commercial installations would have been even greater at the time the '871 application was filed due to fears relating to performance failures.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both and that such willful false statements may jeopardize the validity of the current application or any application issued thereon.

Michael A. Norton
(Signature)

2/03/2005
(Date)

MICHAEL A. NORTON
(Name Printed/Typed)